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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/541,996	04/10/2006	Yoshiki Nakagawa	UNI110.001APC	6606

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EXAMINER

BOYLE, ROBERT C

ART UNIT	PAPER NUMBER
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1764

NOTIFICATION DATE	DELIVERY MODE
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01/13/2011

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/541,996	Applicant(s) NAKAGAWA ET AL.	
	Examiner ROBERT C. BOYLE	Art Unit 1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 November 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 57-59,62-65,67,68 and 77-86 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 57-59,62-65,67,68 and 77-86 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. New grounds of rejection have been introduced, therefore this action is properly deemed NON-FINAL. Any delay in prosecution is regretted; however an updated search uncovered applicable art.
3. The Declaration by Jiro Okai filed on 11/15/2010 is hereby acknowledged. The Declaration was filed to show the unexpected effect of methyl esters. This Declaration is discussed in more detail in the "Response to Arguments" section below.

Claim Objections

4. The claim objections presented in the previous Office Action are withdrawn in view of the amendments made.

Claim Rejections - 35 USC § 103

5. Claims 57-58, 62-65, 67-68, 77-81, 83-85 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Fujita** (WO 00/20498) in view of **Reid** (US 2,859,197). As the cited WO publication is in a non-English language, the English equivalent, US 2004/0029990 ("Fujita"), has been utilized in place of WO '498. All column and line number citations are made with respect to the above mentioned U.S. document.

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6. As to claims 57-59, 67-68, 86, Fujita teaches a curable composition containing two components (A) a vinyl polymer having a crosslinking silyl group and (B) a photocurable substance (abstract) where the vinyl polymer is made with monomers such as methyl methacrylate or methyl acrylate (§ 37) and the polymer has at least one crosslinking silyl group of the formula (1) (§ 16, 114) at the terminus of the chain (§ 122). Fujita teaches that curing catalysts may be used (§ 227) which include amine compounds (§ 228). Fujita does not teach using methyl derivatives of the ester compounds.

7. However, Reid teaches the use of dimethyl adipate as a processing aid in vinylidene resins (col. 1, ln. 15-19). It would have been obvious to one of ordinary skill in the art to use the dimethyl adipate possessing aid of Reid with the composition of Fujita because Fujita teaches vinylidene chloride monomers incorporated into the vinyl polymer (§ 37) and Reid teaches the dimethyl adipate has excellent light stability, good heat stability, good spew resistance, and is non-toxic, non-allergic, and relatively odorless, and does not appreciably increase the tendency of orientated films or filaments to shrink at elevated temperatures (col. 2, ln. 7-13).

8. Claims 62 states properties of the vinyl polymer: being liquid at 23°C. While Fujita and Reid do not elaborate on the property, Fujita and Reid teaches essentially the same vinyl polymer and process as that of the claimed, and one of ordinary skill in the art would have a reasonable basis to believe the vinyl polymer of Fujita and Reid exhibits essentially the same properties. Since the PTO cannot conduct experiments, the burden of proof is shifted to the applicants to establish an unobvious difference. See *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977). Thus, the instantly claimed composition is rendered obvious over the disclosures of Fujita and Reid.

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9. As to claims 63-64, Fujita teaches forming the polymer by living radical polymerization and atom transfer polymerization (§§ 41-111).
10. As to claim 65, Fujita teaches the Mw/Mn of less than 1.8 (§ 38).
11. As to claim 77, Fujita teaches one-component systems (§ 252).
12. As to claims 78-80, Fujita teaches using a condensation curing catalyst such as dibutyl tin dilaurate or butyl amine (§§ 227-233).
13. As to claim 81, Fujita teaches amino coupling agents such as aminopropyltrimethoxysilane (§§ 227-233).
14. As to claims 83-85, Fujita teaches gaskets, sealants and adhesives formed from the curable compositions (§ 578).
15. Claim 82 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Fujita** (WO 00/20498) in view of **Reid** (US 2,859,197) and **Inoue** (US 6,255,392). As the cited WO publication is in a non-English language, the English equivalent, US 2004/0029990 ("Fujita"), has been utilized in place of WO '498. All column and line number citations are made with respect to the above mentioned U.S. document. The discussion with respect to Fujita and Reid as set forth in paragraphs 4-13 above is incorporated here by reference.
16. As to claim 82, Fujita teaches a curable composition containing two components (A) a vinyl polymer having a crosslinking silyl group and (B) a photocurable substance (abstract) where the vinyl polymer is made with monomers such as methyl methacrylate or methyl acrylate (§ 37) and the polymer has at least one crosslinking silyl group of the formula (1) (§ 16, 114) at the terminus of the chain (§ 122). Fujita teaches that curing catalysts may be used (§ 227) which

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include amine compounds (§ 228). Reid teaches the use of dimethyl adipate as a processing aid in vinylidene resins (col. 1, ln. 15-19).

17. Fujita and Reid do not teach adding a second polymer.

18. Inoue teaches the addition of a vinyl polymer containing (A) a hydrolysable silyl group added to (B) a compound containing no silyl groups, where (B) may be vinyl copolymers with 7-50 wt% hydroxyl containing monomer and the remainder is a second monomer, which includes methyl methacrylate and the ester of acrylic acid which are added to a curing component such as amines (abstract; col. 2, ln. 20-61; col. 10, ln. 60-col. 12, ln. 31; col. 17, ln. 25-col. 18, ln. 17). It would have been obvious to add the second polymer as taught by Inoue with the curable composition of Fujita because using the polymers of Inoue increases the durability of the cured composition and adds to acid resistance and weatherability (Inoue: col. 1, ln. 40-49; col. 20, ln. 1-8).

19. Claims 57-58, 62-65, 67-68, 77-81, 83-85 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Fujita** (WO 00/20498) in view of **Homan** (US 4,585,836). As the cited WO publication is in a non-English language, the English equivalent, US 2004/0029990 ("Fujita"), has been utilized in place of WO '498. All column and line number citations are made with respect to the above mentioned U.S. document.

20. As to claims 57-59, 67-68, Fujita teaches a curable composition containing two components (A) a vinyl polymer having a crosslinking silyl group and (B) a photocurable substance (abstract) where the vinyl polymer is made with monomers such as methyl methacrylate or methyl acrylate (§ 37) and the polymer has at least one crosslinking silyl group

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of the formula (1) (¶ 16, 114) at the terminus of the chain (¶ 122). Fujita teaches that curing catalysts may be used (¶ 227) which include amine compounds (¶ 228). Fujita does not teach using methyl derivatives of the ester compounds.

21. However, Homan teaches the use of esters of the formula $C_wH_{2w+1}C(O)OC_nH_{2n+1}$ (col. 4, ln. 8) where $w = 1-3$ and $n = 1-6$ (col. 4, ln. 30-31) as an ammonia scavenger compound (col. 4, ln. 4) in the condensation of silicones (col. 4 ln. 13-14). When $n = 1$, the recited formula includes embodiments that correspond to the claimed methyl acetate, methyl propionate, and methyl butyrate. It would have been obvious to use the ammonia scavenger compound of Homan because the ammonia scavenger compound operates to associate with any ammonia generated by the interaction of the "endblocking agent" (amine compound) with the silicone, and enables the removal of such ammonia (col. 10, ln. 26-38). Additionally, the ammonia scavenger compound increases lap shear stability and improves the resistance to creep (col. 10, ln. 46-48).

22. It is noted that Homan makes use of silicone pressure sensitive adhesives, rather than the vinyl polymers claimed. It has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Homan is reasonably pertinent to the particular problem with which the applicant was concerned because the vinyl polymers claimed are crosslinked through the "crosslinkable silyl group at the terminus" (see instant specification, pg. 1) which is analogous to the silicone polymers of Homan in that the siloxane groups are being condensed together (Homan: col. 4, ln. 13) where both the claimed composition and the composition of Homan have amines present (Homan: col. 9, ln. 35-

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45). Furthermore, the instant invention is concerned with improving the mechanical properties of the cured product (pg. 7, ln. 7-9) and Homan does so by increasing the lap shear stability and improving the resistance to creep (Homan: col. 10, ln. 46-48).

23. Claims 62 states properties of the vinyl polymer: being liquid at 23°C. While Fujita and Homan do not elaborate on the property, Fujita and Homan teaches essentially the same vinyl polymer and process as that of the claimed, and one of ordinary skill in the art would have a reasonable basis to believe the vinyl polymer of Fujita and Homan exhibits essentially the same properties. Since the PTO cannot conduct experiments, the burden of proof is shifted to the applicants to establish an unobvious difference. See *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977). Thus, the instantly claimed composition is rendered obvious over the disclosures of Fujita and Homan.

24. As to claims 63-64, Fujita teaches forming the polymer by living radical polymerization and atom transfer polymerization (§ 41-111).

25. As to claim 65, Fujita teaches the Mw/Mn of less than 1.8 (§ 38).

26. As to claim 77, Fujita teaches one-component systems (§ 252).

27. As to claims 78-80, Fujita teaches using a condensation curing catalyst such as dibutyl tin dilaurate or butyl amine (§ 227-233).

28. As to claim 81, Fujita teaches amino coupling agents such as aminopropyltrimethoxysilane (§ 227-233).

29. As to claims 83-85, Fujita teaches gaskets, sealants and adhesives formed from the curable compositions (§ 578).

30. Claim 82 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Fujita** (WO 00/20498) in view of **Homan** (US 4,585,836) and **Inoue** (US 6,255,392). As the cited WO publication is in a non-English language, the English equivalent, US 2004/0029990 ("Fujita"), has been utilized in place of WO '498. All column and line number citations are made with respect to the above mentioned U.S. document. The discussion with respect to Fujita and Homan as set forth in paragraphs 18-28 above is incorporated here by reference.

31. As to claim 82, Fujita teaches a curable composition containing two components (A) a vinyl polymer having a crosslinking silyl group and (B) a photocurable substance (abstract) where the vinyl polymer is made with monomers such as methyl methacrylate or methyl acrylate (§ 37) and the polymer has at least one crosslinking silyl group of the formula (1) (§ 16, 114) at the terminus of the chain (§ 122). Fujita teaches that curing catalysts may be used (§ 227) which include amine compounds (§ 228). Homan teaches the use of esters of the formula $C_wH_{2w+1}C(O)OC_nH_{2n+1}$ (col. 4, ln. 8) where $w = 1-3$ and $n = 1-6$ (col. 4, ln. 30-31) as an ammonia scavenger compound (col. 4, ln. 4) in the condensation of silicones (col. 4 ln. 13-14).

32. Fujita and Homan do not teach adding a second polymer.

33. Inoue teaches the addition of a vinyl polymer containing (A) a hydrolysable silyl group added to (B) a compound containing no silyl groups, where (B) may be vinyl copolymers with 7-50 wt% hydroxyl containing monomer and the remainder is a second monomer, which includes methyl methacrylate and the ester of acrylic acid which are added to a curing component such as amines (abstract; col. 2, ln. 20-61; col. 10, ln. 60-col. 12, ln. 31; col. 17, ln. 25-col. 18, ln. 17). It would have been obvious to add the second polymer as taught by Inoue with the curable composition of Fujuta because using the polymers of Inoue increases the durability of the cured

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composition and adds to acid resistance and weatherability (Inoue: col. 1, ln. 40-49; col. 20, ln. 1-8).

Response to Arguments

34. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

35. The Declaration filed on 11/15/2010 is to show the unexpected effect of methyl ester over butyl ester or ethyl esters in retarding the curing time after storage.

36. Table 1 of the Declaration shows the use of dimethyl adipate results in a reduction of skinning time (from 22 minutes to 19 minutes) while the rest of the alkyl esters (diethyl adipate, dibutyl adipate, dioctyl adipate, di-isodecyl phthalate) result in an increase of skinning time. It is noted that this data is inconsistent with the data provided in a declaration filed on 4/14/2010, where the presence of dimethyl adipate resulted in the skinning time not changing, as opposed to decreasing.

37. This data is sufficient to establish that dibutyl adipate and dimethyl adipate are not interchangeable, as presented in the previous Office Action. However, the data is not sufficient to show unexpected results.

38. The data is not commensurate with the scope of the claims as required by MPEP 716.02(d) because data on only one of the claimed esters is provided while 16 esters are claimed. Additionally, the data uses only one vinyl polymer and one amine compound, whereas innumerable vinyl polymers and amine compounds are within the scope of claim 1.

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39. Also, the references presented in the rejections above, Reid and Homan, provide persuasive motivation to use the claimed esters which is not overcome by the data presented in the Declaration. The references contain reasoning that would lead one of ordinary skill in the art to the conclusion that the methyl esters provide better stability. Homan teaches that such esters are ammonia scavengers, which would slow down the rate of curing. Reid teaches the dimethyl adipates have good light and heat stability, and adipates with higher alkyl esters have an increased tendency to spew.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT C. BOYLE whose telephone number is (571)270-7347. The examiner can normally be reached on Monday-Thursday, 9:00AM-5:00PM Eastern.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571)272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Robert C. Boyle/
Examiner, Art Unit 1764

/Vasu Jagannathan/
Supervisory Patent Examiner, Art Unit 1764